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The New Eugenics? The Ethics of Bio-Technology

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Is Human Nature Obsolete? Genetics, Bioengineering, and the Future of the Human Condition. Ed. Harold W. Baillie and Timothy K. Casey (Cambridge, Massachusetts and London: The MIT Press, 2005), x + 422pp, £17.05 pb.

Liberal Eugenics: In Defence of Human Enhancement. By Nicholas Agar (Oxford, Malden MA: Blackwell, 2004), viii + 205pp, £55.00 hb.

The history of eugenics is getting tricky. Once regarded as an initially idealistic concept that degenerated into the monstrous Nazi race hygiene project or into an American sterilization assault against the disadvantaged and racially "inferior", eugenics was deemed to have died after the Second World War, utterly discredited by better biological science and more enlightened social ideas. However recent research has shown that eugenics was more variegated than once thought — there were leftist and "reform" eugenists as well as "mainline" or reactionary eugenists, with dedicated opposition coming more from liberal and religious quarters. Ingrained into contemporary structures and social issues such as demography, welfare, race and gender, eugenics proved more resilient and widespread than previously thought. Historians were slow to recognize its pervasive influence in Scandinavia, Latin America and Asia, where local variants evolved as adaptations to local culture and conditions. And it has persisted to the present day. In welfarist Scandinavia, eugenics has been repackaged as reproductive autonomy or "medical" measures.[1] In Communist China it is alive and well in sterilization programmes and the one baby policy.[2] More than this, critics allege, it has been resurrected in the "new genetics" of recent times.

Geneticists have historically been strong supporters of eugenics as a way of scientifically improving (now read "enhancing") the genetic quality of the human race. As I have argued in another place, during the inter-war period they failed properly to scrutinize methodologies and data used to support sterilization of mental defectives,[3] and it is contendable that social and ideological factors have continued to play a role — alongside epistemic factors associated with the expansion of genetic knowledge — in

[1] Gunnar Broberg and Nils Roll-Hansen, eds., *Eugenics and the Welfare State: Sterilization Policy in Denmark, Sweden, Norway, and Finland* (East Lansing, 1996). On South America see Nancy Stepan, *"The Hour of Eugenics": Race, Gender and Nation in Latin America* (Ithaca, New York, 1991) and Julia Rodriguez, *Civilizing Argentina: Science, Medicine and the Modern State* (Chapel Hill, 2006).
[2] Frank Dikötter, *Imperfect Conceptions: Medical Knowledge, Birth Defects and Eugenics in China* (New York, 1998).
[3] Paul Crook, *Darwin's Coat-Tails: Essays on Social Darwinism* (Oxford, New York, 2007), essay 16 "Eugenics, Genetics and Feeblemindedness". See essay 15 "American and Nazi Eugenics: Flawed Alliance" for more on the historiography of eugenics.

the motivations of biological scientists, although of course they routinely avoid the term "eugenics".

The Human Genome Project unleashed a tide of triumphalism about bio-technology.[4] But it also unleashed criticism, ranging from moderate philosophy to doomsday prophecy. Some scenarios were of the stuff of science fiction: human clones, androids, cyborgs, super-intelligent-strong-creative humans, post-humans, a world divided into a genetically enhanced elite and genetically deprived proles,[5] etc, etc. There is talk of a loss of "humanhood" and the human meaning of life, of scientists "playing God" — of interfering with nature, of being morally unconcerned with the social consequences of their research: understandable enough, given the poor historical track record of scientists (there have been some honourable exceptions) in this respect, as the history of the atomic bomb suggests. The emotionality of claims both for and against human enhancement seems to have calmed down perceptibly as the Genome project has steadily advanced. Perhaps it is because we have become quietly conditioned to accept what was once unthinkable. Perhaps it is because the medical focus has been trained upon the practical benefits of specific research into congenital diseases, while the more grotesque prophecies have not yet eventuated. While the power of bio-engineering has by no means diminished, there has emerged a more realistic understanding of the limitations adhering to genetic manipulation. Nevertheless ethical concerns continue to be raised about issues such as the destruction of embryonic life in stem cell research, cloning and so on. Given that we are dealing with possibly the most dramatic scientific breakthrough in history, one that could change the human future massively, ethical debate is inevitable. It is also vital, not least because technology is threatening to quarantine itself from ethical (or any other) scrutiny.

Book titles on the ethics of bio-technology radiate a sense of concern: for instance Paul Ramsay's *Fabricated Man* (1970), John Harris's, *Wonderwoman and Superman* (1992) and *Clones, Genes and Immortality* (1998), Bernard Rollin's *The Frankenstein Syndrome* (1995), Robert Cook-Deegan's *The Gene Wars* (1996), Jeff Lyon and Peter Gorner's *Altered Fates* (1996), Ted Peter's *Playing God?*(1997), Jon Turney's *Frankenstein's Footsteps* (1998), Bryan Appleyard's *Brave New Worlds* (1998), Thomas Shannon's *Made in Whose Image* (2000), Francis Fukuyama's *Our Posthuman Future* (2002), Leon Kass's *Human Cloning and Human Dignity* (2002), Stephen Hall's *Merchants of Immortality* (2003), Bill McKibben's *Enough: Staying Human in an Engineered Age* (2003) and Van Huyssteen's *Alone in the World?*(2006).

Debate has centred on the concepts of nature and human nature: "the questions ultimately raised by genetic engineering itself and the prospect of constructing our bodies and the bodies of future human beings are ones that go to the heart of our

[4] There are a number of groups (mostly in the US) who embrace ideas of redesigning humans (intellect and psychology), finding eternal youth and beauty, merging the human and the technological ("cyborgisation") and colonizing other planets. They include the World Transhumanist Association with its *Journal of Transhumanism* and less reputable cults such as the Extropians and the Raelians (who claim to have produced human clones, aim at eternal life and source the human race to a process of cloning by aliens from space). On this see Langdon Winner, "Resistance is Futile: The Post human Condition and its Advocates" in Harold W. Baillie and Timothy K. Casey, eds, *Is Human Nature Obsolete? Genetics, Bioengineering, and the Future of the Human Condition* (Cambridge MA and London, 2005). A popular example of the posthumanist genre is Hans Moravec, *Robot: Mere Machines to Transcendant Mind* (Oxford, New York, 1999).

[5] As in Lee Silver's predicted division of the world into "GenRich" and "Naturals" in three hundred years time: *Remaking Eden: Cloning and Beyond in a Brave New World* (Avon, New York, 1997).

humanness and place in the larger scheme of things, and thus can be ignored only at our peril". Thus comments Timothy Casey in a wide-ranging set of essays aptly titled *Is Human Nature Obsolete? Genetics, Bioengineering, and the Future of the Human Condition.*[6]

Critics of human enhancement tend to argue — with varying degrees of subtlety — against interference with the order of nature, especially human nature, which is seen as a "given" or sacrosanct, stable and coherent. To meddle with its stability and complexity is to invite disaster, to distort the inherent meaning of things. Some would see it as subverting the inherent moral order of things. As the philosopher Mark Sagoff remarks, the concepts of nature and the natural carry enormous importance and emotional force: "Nature is the object of responsibility, respect, stewardship, love, rights, and reverence".[7]

One problem with this view is that humans have been obviously "interfering" with nature for ever. It is contendable that what gives a special character to the human family (including some hominids) is its capacity to adapt to, alter and control its natural habitat by means of brainpower, language, tools, etc. Since the scientific and industrial revolutions of the sixteenth century onwards (the Anthropocene era as it has been called[8]), the human capacity to control and dominate nature has risen to new, even terrifying heights, explaining scientific hubris and setting off a variety of counter movements, including the modern environmentalist movement. Clearly technological change has had both beneficial and harmful effects. Ethicists would presumably agree, for example, that European exploration of the New World brought valuable new resources into Europe but also introduced damaging illnesses to indigenous peoples. If a technology brings good outcomes — e.g., making people healthier, more intelligent, etc — why shouldn't we use it? We have been "enhancing" humans for a long time through education. Why not by means of bio-technology?[9] Advocates of bio-technology argue forcibly that all we need to do is to make utilitarian assessments of the outcomes of genetic manipulation. We essentially add up the possible costs and benefits. Other approaches can be dismissed as either flawed (e.g., naturalistic ethics), or antediluvian (e.g., religious), or impossibly romantic (e.g., environmentalist). Bio-ethicists such as Leon Kass or the environmentalist David Suzuki counter that this approach is not enough — it is too instrumental and hubristic. Nature is more than a

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[6] Baillie and Casey, *Is Human Nature Obsolete?*.

[7] Mark Sagoff, "Nature and Human Nature" in Baillie and Casey, *Is Human Nature Obsolete?*, p. 74. Interestingly some voices have called for a truce between science and religion in order to save nature and the planet from global warming. The socio-biologist E.O.Wilson — usually aligned with secularists such as Richard Dawkins in attacking religion — has just written a book *The Creation: An Appeal to Save Life on Earth* (London, New York, 2007) emphasizing human responsibility to preserve bio-diversity, and asking for religion to assist science in averting natural disaster.

[8] As Jonathon Silvertown says: "The current geological era has been dubbed the Anthropocene in recognition of the fact that, since the Industrial Revolution about 200 years ago, human influence on the environment has become planetary in scale. Now 40 per cent of plant growth each year is appropriated for human use": review of David Beerling, *The Emerald Planet: How Plants Changed Earth's History* (Oxford, 2007) in *Times Literary Supplement* (23 November 2007), p. 29. Beerling criticizes James Lovelock's well known Gaia theory that the earth is a self-regulating system as too restrictive. It is (he says) a theory "suspended uncomfortably between tainted metaphor, fact and false science".

[9] John Harris, *Clones, Genes, and Immortality: Ethics and the Genetic Revolution* (Oxford, 1998), pp. 171-72. Harris develops his ideas in a book just out: *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton, 2007).

system of utilitarian calculations. Sagoff summarises: "Nature may be useful, but more important, it is majestic, beautiful and sacred, either because of its randomness and spontaneity or its intricate design and balance".[10]

Darwinian history raises some interesting issues in this respect. Some early Social Darwinists used the model of a competitive struggle-based nature to justify what we now regard as morally unedifying or problematic stances, such as exploitative capitalism, militarism and racism. "Laissez faire" Darwinism based ethics on nature. People should follow the example of nature with its harsh natural selection and selection of "fitter" types. Not to do so would court disaster. They were taken to task by critics who were appalled by the violence and bloodshed of nature: Tennyson's "nature red in tooth and claw". Some critics simply substituted a more benevolent model of nature (e.g., Kropotkin's mutual aid model). However others disputed the philosophical basis of naturalistic ethics. They appealed to a long-standing tradition which claimed that "is" does not logically entail "ought" (or description entail prescription). This goes back to Hume but was given influential expression in G. E. Moore's *Principia Ethica* (1903), which sought to quarantine science from ethics. In such views it was illegitimate, a "naturalistic fallacy", to derive morals from the "is" of nature. Humans needed to put themselves "above" nature and adhere to human-derived moral codes. Clearly this is one way of validating genetic manipulation of the human genome. Sagoff notes that the advance of bio-technology has thrown into confusion "the settled distinction between nature and artifact". Bio-science could transform people from created to "fabricated" beings. This could be thought to be a bad thing: "Alternatively, one could view nature as a war of each against all — as having no moral purpose, course or direction — and so believe that by separating itself from nature, culturally and biologically, humanity fulfills its ethical potential".[11]

Interestingly the early eugenists also rejected "laissez faire" Darwinism, although more on the grounds that human interference (through social reform, welfarism, etc.) was thwarting natural selection and causing human degeneration. Galton's followers advocated systematic control of human reproduction to improve the genetic quality of the stock. This led to what has been called "authoritarian eugenics", essentially led by state agencies. The abuses that resulted led to accusations that eugenics threatened the very notion of humanhood. This is still the basis of criticisms of bio-technology, but it is now directed also at concepts of "market-driven" enhancement, with private consumers driving demand for "designer babies", and so on.

Sagoff is clearly sensitive to such concerns. Is medical technology not only making irreversible interventions into the human germ line itself, but treating genomic materials, embryos, life itself as commodity? Thinkers like Kass answer yes[12]. Sagoff makes an interesting distinction between two medical traditions, one seeking to work within natural limits, the other (more dominant) concerned with conquering nature. The first would accept germ line therapy or enhancement, provided it respects "what is already present or implicit in the individual's genomes". For proponents of the opposite view, "the human genome must be reckoned with, not respected. It imposes practical limits, not moral constraints".[13]

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[10] Sagoff, "Nature and Human Nature", p. 87.

[11] *Ibid.*, p. 69.

[12] Leon Kass, *Life, Liberty and the Defense of Dignity: The Challenge for Bioethics* (San Francisco, 2002); *Human Cloning and Human Dignity: The Report of the President's Council on Bioethics* (New York, 2002).

[13] Sagoff, "Nature and Human Nature", p. 79.

The theological response to such latter views is understandably less than enthusiastic. Although there are significant disparities across the Catholic-Protestant-Jewish spectrum, no one (to my knowledge) accepts a genetic free for all. The Catholic theologian Karl Rahner sees the human genome as God-given and not to be meddled with in its essentials. Although human nature is "open and undetermined", to surrender the genome to the technologists would threaten inherent human freedoms. These would include the rights and autonomy of future "fabricated" individuals — a concern shared by some liberals. Other Catholic theologians allow a certain scope for genetic therapy but rule out manipulations that treat individuals "instrumentally rather than as ends in themselves". The Protestant theologian James Nash allows interventions "for the sake of perfecting or redeeming creation, but not for reshaping it to human purposes". Ronald Cole-Turner, however, rebuts this view: "To think of genetic material as the exclusive realm of divine grace and creativity is to reduce God to the level of restriction enzymes, viruses, and sexual reproduction".[14]

The Christian ethicist Jean Elshtain willingly takes the risk of being tagged a technophobe or Luddite. She defends concepts of human finitude against the threat of very powerful cultural demands — fuelled by the profit interests of large bio-tech companies — for "perfecting" the human body and privileging wealthy elites over the ordinary or the "imperfect". This constitutes a threat to the idea of Christian freedom, which (as Bonhoeffer argued) turns on recognition of relationships and natural limits to human "beingness":

> There is a big difference between enacting human projects as cocreators respectful of a limit because, unlike God, we are neither infinite nor omniscient and, by contrast, those projects that demand humans embrace God-likeness for themselves, up to the point of displacing God himself.[15]

Spin-offs from our increasingly hedonistic and amoral culture include indifference to destruction of bodies and life (abortion, the death penalty) and the harvesting of body parts. Genetic screening and enhancement can lead to discrimination against those with inherited genetic "faults" (as is already happening with the American insurance industry). Parents who have "abnormal" children (Down syndrome, autism, the disabled, the "unchosen") are already reporting medical and popular prejudice.[16] Are we that far away from eliminating the mentally and physically inferior, as did the Nazis? Of arrogantly deciding which culturally determined types of humans should be allowed to exist at all? Elshtain detects a siege mentality among critics forced to fight a rearguard battle against powerful forces. She fears: "Too many theologians, philosophers, and cultural critics have become reticent about defending insights drawn from the riches of the Western tradition".[17]

The Boston theologian Lisa Cahill puts a similar case. She accepts that it is difficult to rule out genetic interventions by reference to an "inviolable" human nature. Nevertheless "many of us feel almost instinctively — or on the basis of cumulative moral experience that we find hard to put into the form of a logical argument — that

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[14] Cited in Sagoff, "Nature and Human Nature", pp. 82-85.

[15] Jean Bethke Elshtain, "The Body and the Quest for Control" in Baillie and Casey, *Is Human Nature Obsolete?*, p. 156.

[16] Hans S. Reinders, *The Future of the Disabled in Liberal Society* (Notre Dame, 2000).

[17] Elshtain, "The Body and the Quest for Control", p. 168.

some genetic engineering should be off-limits".[18] Leon Kass (the head of George W. Bush's Council on Bioethics) has argued that instinctive "repugnance" is our best guide in cases such as cloning of humans. It is "the emotional expression of deep wisdom, beyond reason's power to fully articulate it".[19] Cahill, however, rejects such essentialism and prefers an ethical argument based on social justice and cooperative relationships (as found in traditional Catholic social teaching). On such grounds, "regardless of whether or not cloning is intrinsically evil in itself", it should be regulated or even banned: "Commercialized, technology-driven reproduction affects the social institutions of family and parenthood in deleterious ways because it makes basic, intimate human relations and communities subject to individualism, commodification, and exploitation".[20]

For their part the philosophers Casey and Sagoff seem to opt for an existential acceptance of human indeterminacy. Given that there is no going back to natural law tradition — "that is to say, to any kind of ahistorical conception of nature whose laws and structures are fixed for all time" — Casey sees us as "enmeshed, fully and without recourse, in the turbulence of history". We must either acquiesce in a biological determinism "along cybernetic lines", or we resist "the thoughtless equations of freedom with technical control and wisdom with technical expertise". Above all we will need to learn "what it means to be at home in our homelessness, and so to thrive in a world that despite our best efforts and no matter how powerful our techniques can be made neither wholly comfortable nor ultimately reassuring".[21]

Sagoff feels that bio-technology offers us both possibilities and punishments. There are real threats to human identity. He cites the British philosopher Alan Holland who explains the distrust of genetic engineering as representing what he calls a "metaphysical fear" that "centers on concerns over the implications of this technology for conceptions of identity, integrity and origin which are foundational to our world view and to our ability to classify individual beings".[22] Sagoff argues that the concept of nature that sees it as existing independently of human action or intention (one view of nature that John Stuart Mill identified) is meaningless as a scientific notion, but nevertheless "carries a great deal of force in arguments having to do with what we ought or ought not to do". Its force may depend, however, "on how one judges the moral worth of nature — for instance, whether one condemns nature as a gruesome war of each against all or reveres it as what God has made". But to sever nature from humanity is to invite a sort of human fatalism. The temptation is to absolve humans of responsibility for events: "In dealing with great tragedies and taking up heavy burdens, people console themselves with the thought that their plight is God's will or that it couldn't be helped". No one is to blame. This fatalism is dangerous, especially when it is used to refer to what should not be changed: "To place nature beyond human blame or responsibility is simply to recognize the limits of our knowledge and powers. To suppose that nature has itself a moral order or purpose we should respect, in contrast, is

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[18] Lisa Sowle Cahill, "Nature, Sin, and Society" in Baillie and Casey, *Is Human Nature Obsolete?*, p. 342.

[19] Leon Kass, "The Wisdom of Repugnance", *New Republic*, 2 June 1997, p. 20; quoted in Nicholas Agar, *Liberal Eugenics: In Defence of Human Enhancement* (Oxford, 2004), p.56. Agar dubs this the "yuck" factor and objects that this places moral conclusions beyond reason's reach.

[20] Cahill, "Nature, Sin, and Society", p. 346.

[21] Timothy K. Casey, "Nature, Technology, and the Emergence of Cybernetic Humanity" in *Is Human Nature Obsolete?*, pp. 60-61.

[22] Alan Holland and Andrew Johnson, eds, *Animal Biotechnology and Ethics* (London, 1980, p. 239.

for us to impose limits on those powers". Any appeal to a fixed nature, nature that is the source of human norms, is increasingly problematical as technology transforms the life process itself.[23] Sagoff concludes that the problem with engineering the human genome "is not so much that it will alienate or separate us from our human nature — from what is given or contingent — but that it will increasingly make us responsible for it".[24]

Nicholas Agar argues eloquently for a middle position based upon traditional liberal principles in his bravely titled *Liberal Eugenics: In Defence of Human Enhancement*.[25] An ethics philosopher who teaches at Victoria University of Wellington, Agar feels that both advocates of enhancement technologies and their critics have a duty to take responsible stances. Advocates cannot simply assume a right to proceed (as many do) but ought to furnish "morally transparent" descriptions of their technologies. But critics are also under an obligation to show "that their criticisms are properly directed at the technologies, not merely at caricatures of them".[26]

Agar's "liberal eugenics" is essentially market-based eugenics with safeguards to ensure individual and social rights. As opposed to authoritarian eugenics, this system would focus upon giving choices to people. The state would simply foster development of a wide range of enhancement technologies "ensuring that prospective parents were fully informed about what kinds of people these technologies would make. Parents' particular conceptions of the good life would guide them in their selection of enhancements for their children".[27] Agar uses classical liberal reasonings (especially those of John Rawls) to justify eugenic freedom in the same fashion as other liberal freedoms. However he recognizes that procedures such as somatic cell nuclear transfer have the potential to alter humans in a powerful way. Thus he stresses the need for limits to be imposed to prevent obviously unethical outcomes, such as those related to the quality of life of the individual offspring themselves. Scrutiny will be needed also of social and economic realities within liberal societies that may subvert "individual enhancement choices" (p. 6). Limits on eugenic choice may also be needed to counter pressures towards racist, homophobic or grossly inegalitarian social outcomes (given that the expense of bio-technology would seem to favour the rich and powerful). Agar carefully considers ways of pragmatically ensuring ethical outcomes but warns that "liberal eugenicists should be open to the idea that some uses of enhancement technologies are just wrong and should be banned" (p. 15).

How does one make such decisions? Agar uses the method of "moral images" to test cases (ch. 3). This method reduces the "strangeness" of bio-technologies by applying moral judgments from the familiar to the unfamiliar. Moral scenarios are set up of particular test situations: these must resemble the practices at issue in relevant respects; and "we should have secure moral intuitions about them" (p. 3). For those concerned about foundations for all this, Agar supplies detailed analysis of consequentialist, Kantian and other ethical systems. His method (he says) is not designed to displace such (sometimes differing) moral principles. Its purpose is practical, "to direct us to the

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[23] Harold W. Baillie and Timothy K. Casey, "Introduction" in Baillie and Casey, *Is Human Nature Obsolete?*, p. 8.

[24] Sagoff, "Nature and Human Nature", pp. 89-90.

[25] Nicholas Agar, *Liberal Eugenics: In Defence of Human Enhancement* (Oxford, Malden MA, 2004).

[26] *Ibid.*, p. 23: such caricatures are readily found in sci-fi films such as *Gattica* and *Star Wars: Attack of the Clones.*

[27] *Ibid.*, p. 5.

wide variety of moral concerns provoked by enhancement technologies". Moral images will give the Kantians, utilitarians and other moralists a way to express their concerns: "They will propose different moral images, each of which can be assessed in terms of its closeness to the practices of enhancement" (p. 39).

Among his major categories are the moral images of Therapy, Nature and Nurture. Overall he holds that parents should be permitted but not obliged to enhance their children. Hence he opposes the authoritarian view (as with the Nazis) that would oblige parents to enhance offspring "according to a single eugenic template" (p. 86).[28] This type of "therapy" supports obligations rather than permissions. Hence Agar suggests strictly limiting the scope of therapy to the prevention or treatment of disease. Agar addresses criticisms of bio-technology based on the view that humans are products of nature — "nature's handiwork" — whether by divine design or by processes of evolution, and that genetic interventions threaten these processes (or usurp them). Francis Fukuyama typifies this approach.[29] Agar responds that the moral image of nature actually supports a restricted prerogative to enhance. He relies on the conditional claim "that if it is morally acceptable to leave in place a given natural genetic arrangement associated with enhanced ability, then it is morally acceptable to engineer an arrangement with the same effects" (p. 89). He cites "the nature principle", that moves from a permission not to act, to permission to act (pp. 99-100). He also has a "nurture principle": "If we are permitted to produce certain traits by modifying our children's environments, then we are also permitted to produce them by modifying their genomes" (p. 113). Agar rejects genetic determinism, which so often infects enthusiasts for bio-technology. He is aware that this threatens to subvert socially progressive projects (such as educational reform) on the grounds that they are a waste of time and money, given that we are prisoners of our genes. There is in fact widespread theoretical acceptance that human development is the product of profoundly complex interactions between genes and environment (including upbringing and education). This approach can be used to counter ethicists, such as Kass, who fear that genetic engineering will "manufacture" humans, and thus dehumanize and depersonalize them. Personalities are in reality "made" by environments as well as by genes.

What are Agar's "liberal safeguards"? Despite his touching faith that systems based upon individual choices are more likely to produce good outcomes than state-based systems (historians might well be sceptical on that point), he accepts the dangers of poor or unethical choices being made: "We will need to make educated guesses about how our rationally and morally imperfect descendants will react to the widespread availability and use of genomics, genetic engineering and cloning" (p. 133). He concedes that there are future dangers of (1) "polarization", where genetic change results in different sub-groups — even perhaps sub-species — evolving to the point where the social bonding that is integral to liberal society becomes impossible; and (2) "homogenization" where citizens become so similar "that liberal protections of diversity will become redundant" (p. 134) and we will be fated to live in a suffocating monoculture. Agar is not alarmist about such fears. He devises safeguards, mainly

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[28] Agar is opposed to the "intrusive" approach adopted in Allen Buchanan, Dan Brock, Norman Daniels and Daniel Winkler, *From Chance to Choice: Genetics and Justice* (Cambridge, 2000).

[29] Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (New York, 2002): "In the end, biotechnology will cause us in some way to lose our humanity — that is, some essential quality that has always underpinned our sense of who we are and where we are going…" (p. 101).

along the lines of ensuring the right of the child to make meaningful choices about the course of its life and countering differential access to genetic technologies. This (he urges) would be consistent with traditional liberal strategies of ensuring a just distribution of goods needed for a good life, as Rawls argues, and thus prevent a widening of the gap between rich and poor. Diffusion of technology would hopefully lower costs and enable wider access to medical procedures. Much of this is, of course, problematic. Are modern health systems becoming cheaper and more readily accessible, or is the trend the other way? How feasible are "just distribution" aspirations in (say) an American political system that is outspokenly anti-welfare? Agar is a philosopher, not a political scientist, and he does not searchingly interrogate such political issues.

Agar is a "pragmatic optimist". While recognizing that bio-technology is unbelievably complex, and that there are serious risks in genetic change, he considers the potential benefits to outweigh harms. He is to be commended for a thoughtful analysis of a plethora of ethical scenarios, treated with respect, an awareness of reality and common sense. His humane liberalism is cogently argued and admirable. Yet at times he seems to be standing in the path of an engulfing tsunami. And there is a depressing sense in his final chapters that ultimately little can be done about some major threats to humanity coming out of bio-technology. On the contentious ethical issue of full human cloning, for example, he seems essentially to have conceded the battle before it has begun. He virtually rules out legislative prohibition in liberal democracies, on the grounds that cloning would happen anyway: either as research is driven underground with private funding; or as cloning is given the green light in countries such as China and Korea. Brave New World indeed!